IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of HUBERT CECILE FRANCOIS MARTENS	Atty. Docket NL 030748
	Confirmation No. 3436
Serial No. 10/563,935	Group Art Unit: 2627
Filed: JANUARY 9, 2006	Examiner: KLIMOWICZ, W.J.

Title: RECORDABLE OPTICAL RECORD CARRIER

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United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant herewith respectfully presents a Brief on Appeal as follows, having filed a Notice of Appeal on February 12, 2009:

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of record Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-16 are pending in this application. Claims 1-16 are rejected in the Final Office Action mailed in November 12, 2008. This rejection was upheld, in the Advisory Action that was mailed on January 21, 2009. Claims 1-16 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellant filed on January 12, 2009 an after final amendment in response to a Final Office Action mailed November 12, 2008. The after final amendment did not include any amendments. In an Advisory Action mailed on January 21, 2009, it is indicated that the after final amendment filed on January 12, 2009 does not place the application in condition for allowance. This Appeal Brief is in response to the Final Office Action mailed November 12, 2008, that finally rejected claims 1-16, which remain finally rejected in the Advisory Action mailed on January 21, 2009.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example, as recited in independent claim 1, is directed to a recordable optical record carrier 1, shown in FIG 1, for recording information using a radiation beam 7 having wavelength and incident on an entrance surface of the optical record carrier 1. As shown in FIG 2 and described on page 5, line 6 to page 6, line 11 of the specification, the record carrier 1 comprises, in this order a protective layer 2 facing the entrance surface; a first recording stack (LO) comprising a recording layer 3 of an organic dye material and a groove structure; a transparent spacer layer 5 sandwiched between neighboring recording stacks; and a second recording stack (LN) comprising a recording layer. The groove depth g of the recording layer 3 of the first recording stack (LO) is in a range from $0.241*\lambda/n_s$ to $0.362*\lambda/n_s$, where n_s is a refractive index of a material 2 in a land between grooves on the groove structure.

The present invention, for example, as recited in claim 2 and described on page 6, line 10 of the specification, the groove depth

of the recording layer 3 of the first recording stack (LO) is in a range from $0.289*\lambda/n_s$ to $0.337*\lambda/n_s$.

The present invention, for example, as recited in claim 3 and described on page 3, lines 15-32 of the specification, the groove width of the recording layer of the first recording stack (LO) is in a range from $0.198*\lambda/NA$ to $0.397*\lambda/NA$, where NA is a numerical aperture of the radiation beam incident on the optical record carrier.

The present invention, for example, as recited in claims 10 and 15 and described on page 4, lines 8-10 of the specification, the thickness of the recording layer of at least one recording stack at a groove position is in a range from $0.168*\lambda/n_r$ to $0.336*\lambda/n_r$, or $0.235*\lambda/n_r$ to $0.302*\lambda/n_r$, where nr is a refractive index of the recording layer.

The present invention, for example, as recited in claims 11 and 16 and described on page 4, lines 11-16 of the specification, the recording layer of at least the first recording stack shows a leveling ratio in a range from 0.3 to 0.5, or 0.35 to 0.40, where

the leveling ratio is the difference between the thickness of the recording layer at a groove position and the thickness of the recording layer at a land position normalized by the groove depth.

The present invention, for example, as recited in claim 12 and described on page 3, lines 18-21 of the specification, the groove width of the recording layer of the first recording stack (LO) and the additional recording stacks is in a range from $0.289*\lambda/NA$ to $0.347*\lambda/NA$.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-3, 7-8, 10-12 and 16 of U.S. Patent Application Serial No. 10/563,935 are unpatentable under 35 U.S.C. §102(b) over EP 1,067,535 (Muramatsu).

Whether claims 4-6, 9 and 13-14 of U.S. Patent Application Serial No. 10/563,935 are unpatentable under 35 U.S.C. §103(a) over Muramatsu.

ARGUMENT

Claims 1-3, 7-8, 10-12 and 16 are said to be unpatentable over Muramatsu.

Appellant respectfully requests the Board to address the patentability of independent claim 1, as well as dependent claims 2-3, 10-12 and 15-16, and further claims 4-9 and 13-14 as depending from claim 1, based on the requirements of independent claim 1. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, Appellant herein specifically reserves the right to argue and address the patentability of claims 4-9 and 13-14 at a later date should the separately patentable subject matter of 4-9 and 13-14 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of independent claim 1, and dependent claims 2-3, 10-12 and 15-16, is not intended as a waiver of Appellant's right to argue the patentability of the further claims and claim elements

at that later time.

Muramatsu is directed to an information recording medium having a plurality of layers for the recording of information. As recited in paragraph [0034], Muramatsu discloses that the thickness dG1 for a groove G and the thickness dL1 for a land L are set so as to satisfy dG1 > dL1.

It is respectfully submitted that Muramatsu does not disclose or suggest the present invention as recited in independent claim 1 which, amongst other patentable elements, recites (illustrative emphasis provided):

> wherein the groove depth of the recording layer of the first recording stack (L0) is in a range from $0.241*\lambda/n_s$ to $0.362*\lambda/n_s$, where n_s is a refractive index of a material in a land between grooves on the groove structure.

A groove depth expressed in terms of wavelength λ of radiation beam and refractive index of a material in a land between grooves on the groove structure, as recited in claims 1 and 2 is nowhere disclosed or suggested in Muramatsu. Rather Muramatsu merely discloses that dG1 > dL1.

Further, it is believed that there is no need to further limit

the claims by reciting a particular wavelength, since claims 1 and 2 specifically recites a particular relationship among wavelength, refractive index and groove depth.

The recited relationship among wavelength, refractive index and groove depth provides substantial benefits, such as providing simultaneously improved high transmission and reflection to allow good read-out signals from both the recording layers L0, LN, with compatibility with the already existing dual-layer DVD-ROM standard. Such a simultaneous improvement of both transmission and reflection is an unexpected result, as disclosed from page 2, line 32 to page 3, line 5 of the present application.

Accordingly, it is respectfully requested that independent claim 1 be allowed. In addition, it is respectfully submitted that claims 2-3, 7-8, 10-12 and 16 should also be allowed at least based on their dependence from independent claim 1 as well as their individually patentable elements.

In particular, a groove width expressed in terms of wavelength λ of radiation beam and the numerical aperture as recited in claims 3 and 12, or the thickness of the recording layer at the groove

position expressed in terms of wavelength λ of radiation beam and the refractive index as recited in claims 10 and 15, is nowhere disclosed or suggested in Muramatsu. Rather, Muramatsu merely discloses that the thickness dG1 for a groove G and the thickness dL1 for a land L are set so as to satisfy dG1 > dL1. Further, a leveling ratio 0.3 to 0.5, as recited in claims 11 and 16, is nowhere disclosed or suggested in Muramatsu. Rather, paragraph [0041] of Muramatsu merely discloses values for the thicknesses and heights of a groove and land.

Claims 4-6, 9 and 13-14 are said to be unpatentable over Muramatsu.

It is respectfully submitted that claims 4-6, 9 and 13-14 should be allowed at least based on their dependence from independent claim 1.

In addition, Appellant denies any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the

presented remarks. However, the Appellant reserves the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

CONCLUSION

Claims 1-16 are patentable over Muramatsu.

Thus, the Examiner's rejections of claims 1-16 should be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

1.(Previously Presented) Recordable optical record carrier for recording information using a radiation beam having wavelength λ and incident on an entrance surface of the optical record carrier comprising, in this order:

- a protective layer facing the entrance surface,

- a first recording stack (LO), said recording stack comprising a recording layer of an organic dye material and a groove structure,

- a transparent spacer layer sandwiched between neighboring recording stacks, and

- a second recording stack (LN) comprising a recording layer,

wherein the groove depth of the recording layer of the first recording stack (LO) is in a range from $0.241*\lambda/n_s$ to $0.362*\lambda/n_s$, where n_s is a refractive index of a material in a land between grooves on the groove structure.

2.(Original) Record carrier according to claim 1, wherein the

groove depth of the recording layer of the first recording stack (L0) is in a range from $0.289*\lambda/n_s$ to $0.337*\lambda/n_s$.

3.(Previously Presented) Record carrier according to claim 1, wherein the groove width of the recording layer of the first recording stack (L0) is in a range from $0.198*\lambda/NA$ to $0.397*\lambda/NA$, where NA is a numerical aperture of the radiation beam incident on the optical record carrier.

4.(Original) Record carrier according to claim 1, further comprising:

- at least one additional recording stack between the protective layer and the second recording stack (LN), said additional recording stack comprising a recording layer of an organic dye material and a groove structure and

- transparent spacer layers sandwiched between the neighboring recording stacks,

wherein the groove depth of the recording layer of at least one of said additional recording stacks is in a range from 0.241*

λ/n_s to $0.362*\lambda/n_s$.

5.(Original) Record carrier according to claim 4, wherein the groove depth of the recording layer of at least one of said additional recording stacks is in a range from $0.289*\lambda/n_s$ to $0.337*\lambda/n_s$.

6.(Previously Presented) Record carrier according to claim 4, wherein the groove width of the recording layers of at least one of said additional recording stacks is in a range from $0.198*\lambda/NA$ to $0.397*\lambda/NA$.

7.(Previously Presented) Record carrier according to claim 1, wherein each recording stack further comprises a metal reflective or heat-sink layer arranged on the side of the recording layer facing away from the entrance surface.

8.(Original) Record carrier according to claim 7, wherein

said metal reflective or heat-sink layers are substantially made of a material of the group consisting Ag, Al, Au or Cu.

9.(Previously Presented) Record carrier according to claim 7, wherein the thickness of said reflective or heat-sink layers is in a range below 40 nm.

10.(Previously Presented) Record carrier according to claim 1 wherein the thickness of the recording layer of at least one recording stack at a groove position is in a range from $0.168*\lambda/n_r$ to $0.336*\lambda/n_r$, where nr is a refractive index of the recording layer.

11.(Previously Presented) Record carrier according to claim 1, wherein the recording layer of at least the first recording stack shows a leveling ratio in a range from 0.3 to 0.5, said leveling ratio being defined as the difference between the thickness of said recording layer at a groove position and the thickness of said recording layer at a land position normalized by

the groove depth.

12.(Previously Presented) Record carrier according to claim 3, wherein the groove width of the recording layer of the first recording stack (L0) is in a range from $0.289*\lambda/NA$ to $0.347*\lambda/NA$.

13.(Previously Presented) Record carrier according to claim 6, wherein the groove width of the recording layers of at least one of said additional recording stacks is in a range from $0.289*\lambda/NA$ to $0.347*\lambda/NA$.

14.(Previously Presented) Record carrier according to claim 7, wherein the thickness of said reflective or heat-sink layers is in a range below 25 nm.

15.(Previously Presented) Record carrier according to claim 10 wherein the thickness of the recording layer of at least one recording stack at a groove position is in a range from $0.235*\lambda/n_r$

to $0.302*\lambda/n_r$.

16.(Previously Presented) Record carrier according to claim 11, wherein the recording layer of at least the first recording stack shows a leveling ratio in a range from 0.35 to 0.40.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None